

Borehole

51-09-12

Log Event A

Borehole Information

Farm : <u>TX</u>	Tank : <u>TX-109</u>	Site Number : <u>299-W15-138</u>
N-Coord : <u>41,902</u>	W-Coord : <u>75,750</u>	TOC Elevation : <u>670.78</u>
Water Level, ft :	Date Drilled : <u>10/31/1971</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

Borehole Notes:

According to the driller's records, this borehole was not perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of published thickness for schedule-40, 6-in. steel tubing.

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>11/1995</u>	Calibration Reference : <u>GJPO-HAN-3</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>3/22/1996</u>	Logging Engineer: <u>Kim Benham</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>10.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>3/25/1996</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>98.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>78.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>3/22/1996</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>77.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>65.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>4</u>	Log Run Date : <u>3/26/1996</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>65.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>10.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

51-09-12

Log Event A

Analysis Information

Analyst : S.D. Barry

Data Processing Reference : P-GJPO-1787

Analysis Date : 11/21/1996

Analysis Notes :

This borehole was logged in four log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The only man-made radionuclide detected in this borehole was Cs-137. The presence of Cs-137 contamination was measured almost continuously from the ground surface to about 25 ft and intermittently to the bottom of the borehole. Two regions of interest can be identified from the plot: between 2 and 10 ft and also between 12.5 and 21 ft. The maximum Cs-137 concentration is 18.6 pCi/g at 3.5 ft.

K-40 concentrations increase at a depth of about 51 ft.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Reports for tanks TX-109 and TX-113.

Log Plot Notes:

Separate log plots show the man-made (Cs-137) and the naturally occurring radionuclides (KUT). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and the natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.